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09/997,030	11/30/2001	Volodymyr V. Kindratenko	8350.0444-00	6132

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EXAMINER

WHELPLEY, MICHAEL V

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/997,030

Applicant(s)

KINDRATENKO ET AL.

Examiner

Michael V Whelpley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on February 18, 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7-12, 14, 16-21, 23 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 13, 15, 22 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date #s 2,3; 11/30/01.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5, and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Karron et al. (US Patent 5,898,793). Karron describes a system and method of rendering the surface structures of a solid object.

3. With regard to Claim 1, Karron describes storing an image that consists of a 3-dimensional signal pattern representing at least one physical property of a 3-dimensional object that has an internal structure (Col 6 Lines 8-13). The image is stored within a regularly spaced grid pattern consisting of voxels with eight vertex values and six faces (Col 4 Lines 33-39). The outer perimeter of the image is detected by determining the intersections of the signal pattern and voxel faces (Col 4 Lines 50-53).

4. With regard to Claims 2 and 8, Karron describes the voxels that make up the 3-dimensional grid as having six sides (Col 4 Lines 34-39).

5. With regard to Claim 3, Karron describes rendering an image of the surface structure (Col 5 Lines 12-13).

6. With regard to Claim 5, Karron describes the selection of a grid location within or on the surface structure of the image (Col 4 Lines 43-46). An identifier is stored for each element of the image that intersects with the selected voxel (Col 4 Lines 50-58).

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These steps are repeated for all voxels intersecting the surface structure of the image (Col 5 Lines 1-11).

7. With regard to Claim 9, Karron describes a voxel neighborhood that is used to determine the order in which voxels are checked for intersection with the image. (Fig 5A). In order to implement the method described, the outer boundary of the grid must be separated from the outer boundary of the image by at least one row of cells.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 10-12, 14, 17-18, 19-21, 23, and 26-27 are rejected under 35 U.S.C.

103(a) as being unpatentable over Karron.

10. With regard to Claims 10-12, 14, and 17-18, the rationale for Claims 1-3, 5, and 8-9 applies equally. It would have been obvious to those of ordinary skill in the art at the time the invention was made to embody the system and method of Karron as an apparatus comprising a network device having a memory containing a program that includes modules for carrying out tasks because it is well known that any method of image processing may be embodied as a device to carry out that method.

11. With regard to Claims 19-21, 23, and 26-27, the rationale for Claims 1-3, 5, and 8-9 applies equally. It would have been obvious to those of ordinary skill in the art at

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the time the invention was made to embody the system and method of Karron as a machine-readable storage device having instructions for carrying out the tasks because it is well known that any method of image processing may be embodied as a device to carry out that method.

12. Claims 7, 16, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karron as applied to Claims 1, 10, and 19 above, and further in view of Borrel et al. (US Patent 5,448,686). Borrel describes a method of detecting the outer perimeter of an image by superimposing a grid composed of regularly spaced cells over the image and testing the cells for intersections.

13. With regard to Claim 7, Borrel describes the ability of a user to select different levels of resolution by choosing different cell sizes for the grid (Col 9 Lines 7-12). It would have been obvious to those of ordinary skill in the art at the time the invention was made to apply the user-input grid size taught by Borrel to the method taught by Karron because it is desirable to be able to increase the resolution for applications requiring high accuracy, and decrease the resolution for applications requiring conservation of processing power.

14. With regard to Claim 16, the rationale for the rejection of Claim 7 applies equally, in light of the rejection of Claims 10-12, 14, and 17-18 above.

15. With regard to Claim 25, the rationale for the rejection of Claim 7 applies equally, in light of the rejection of Claims 19-21, 23, and 26-27 above.

***Allowable Subject Matter***

16. Claims 4, 6, 13, 15, 22, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

17. Applicant's arguments filed February 18, 2004 have been fully considered but they are not persuasive.

18. With regard to the arguments on Pages 9-11 regarding Claims 1-3, 5, 8, and 9, as well as the arguments on Pages 11-13 regarding Claims 10-12, 14, 17, 18, 19-21, 23, 26, and 27, superimposing a grid upon an image of an object does not require visually displaying a grid superimposed on the image. Since Karron teaches storing an image of an object within a regularly spaced grid pattern, a grid must be superimposed upon the image in order to obtain the location of the image with respect to the grid.

19. With regard to the arguments on Pages 17-19 regarding Claims 7, 16, and 25, it would have been obvious to combine the teachings of Karron and Borrel to add the feature of a user-selected grid size to the method of Karron, because decreasing the size of the grid increases the accuracy of the obtained model and increases the processing power required to obtain the model (and vice versa).

20. Applicant's arguments, see Pages 13-17, filed February 18, 2004, with respect to Claims 4, 6, 13, 15, 22, and 24 have been fully considered and are persuasive. The rejection of Claims 4, 6, 13, 15, 22, and 24 has been withdrawn.


**Conclusion**

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Whelpley whose telephone number is (703) 305-5584. The examiner can normally be reached on 8:30-5, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on (703) 305-3900. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

  
**MARK ZIMMERMAN**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW